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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,586	08/26/2003	Huy A. Bui	12671-035001	4993
26181	7590	07/11/2005	EXAMINER	
FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			GURZO, PAUL M	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/649,586	Applicant(s) BUI, HUY A. 	
	Examiner Paul Gurzo	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/28/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of claims 1-18 and 20-46 in the reply filed on 4/25/05 is acknowledged.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 and 20-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lennon et al. (6,804,410) in view of Schamber et al. (6,683,316).

Regarding claims 1-4, 20-23, 410 teaches a method of and computer program for calibrating an ion source, the ion source including a sample control system (62) including a sample holder (56) for supporting a sample plate (54) in a sample plane and a laser source (52) having a focal point representing a point at which a beam generated by the laser source intersects the sample plane, the method comprising mounting a sample plate in the sample holder, the sample plate including one or more target regions, determining a relationship between a coordinate system of the sample plate and a coordinate system of the sample control system, and using a determined relationship to align a target region of the sample plate with ion optics of a mass spectrometer (50) for a mass spectrometric analysis (col. 4, line 48 - col. 7, line 50 and Fig. 5 and 6).

410 does not explicitly teach the relationship being determined at least in part by aligning one or more fiducials relative to a reference point of the sample control system, the fiducials defining reference points of the sample plate coordinate system. However, 316 teaches the sample plate can be moved based on the relationship between the sample plate coordinate system and sample control coordinate system. Further, one or more fiducial marks provided on the sample plate can be used to establish the scale of the optical image. These marks are used to relate coordinates of the optical image (sample control system) with coordinates of the stage driver (and therefore the sample plate coordinate system) (col. 13, line 23 - col. 14, line 67 and Fig. 1-8). This determined relationship can easily be used in a system that includes a mass spectrometer because alignment of the target region and the sample control system is widely realized in mass spectrometry much like in the teaching of 410. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to align fiducials relative to a reference point of the sample control system to ensure that accurate implantation and subsequent analysis occurs.

Regarding claims 5, 6, 18, 24, 25, and 37 it is obvious that the fiducials form the target location because it is the target location that is used to determine the alignment. Further, the fiducials, and therefore the target regions, can be in any desired location and/or shape.

Regarding claims 7-9, 11, 26-28, and 30, 316 teaches the use of a first and second fiducial and these fiducials are used in processing the respective images. Further, these images are then used to position the beam accurately through aligning the fiducial marks with the sample control system. This positioning can only be accomplished if some type of alignment error step is present because there must be a step that determines if the beam and sample are aligned. If

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they are not aligned, the fiducial marks and subsequent images must be reanalyzed to correct for any alignment error, thus achieving the alignment goal of the prior art (col. 13, line 23 - col. 14, line 67).

Regarding claims 12-15 and 31-34, the above applied prior art teaches the need for aligning the laser point to the reference point on the sample plate through the sample control system as stated above. Therefore, it is obvious that the laser's focal point is calibrated because the only way that the laser beam can strike the desired location on the sample plate is if it properly aligned and focused. Without such a step accurate beam intersection with the sample plate would not be possible.

Regarding claims 16, 17, 35, and 36, it is obvious that one or more offsets can be used because the coordinate systems of the sample plate and sample control system operates by using the relationship between the two to determine what, if any, offset exists, and then aligning and calibrating the laser the reduce that offset to as small as possible so that precise beam intersection with the sample plate will occur.

Regarding claims 38, 39, and 43, 410 teaches a mass spectrometry system comprising an ion source including a sample control system (62) including a sample holder (56) for supporting a sample plate (54) in a sample plane and a laser source (52) having a focal point representing a point at which a beam generated by the laser source intersects the sample plane, a processing unit configured to perform operations and mass spectrometric analysis (col. 4, line 48 - col. 7, line 50 and Fig. 5 and 6).

410 does not explicitly teach the relationship being determined at least in part by aligning one or more fiducials relative to a reference point of the sample control system, the fiducials

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defining reference points of the sample plate coordinate system. However, 316 teaches the sample plate can be moved based on the relationship between the sample plate coordinate system and sample control coordinate system. Further, one or more fiducial marks provided on the sample plate can be used to establish the scale of the optical image. These marks are used to relate coordinates of the optical image (sample control system) with coordinates of the stage driver (and therefore the sample plate coordinate system) (col. 13, line 23 - col. 14, line 67 and Fig. 1-8). This determined relationship can easily be used in a system that includes a mass spectrometer because alignment of the target region and the sample control system is widely realized in mass spectrometry much like in the teaching of 410. Finally, at least one of the fiducials must be positioned at a determinable displacement from the target location because one could not use the fiducial information if he did not know where the fiducial was in relation to the target location.

Regarding claims 40-42 and 44-46, it is obvious that the target region can provide at least one of the fiducials because the fiducial can be located at any point on the sample. Further, 410 teaches the use of a MALDI source and MALDI deposits eluent in a track and operates in a high pressure liquid chromatograph.

***Allowable Subject Matter***

Claims 10 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The above applied prior art does not teach or render obvious the claimed third fiducial that is used to align the reference point and to determine the alignment error of the coordinate system relative to the third fiducial.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (571) 272-2472. The examiner can normally be reached on M-Fri. 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached at (571) 272-2477. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMG

  
JOHN R. LEE  
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